

FEDERAL AVIATION AGENCY
Washington 25, D.C.
TECHNICAL STANDARD ORDER
Regulations of the Administrator
Part 514

Subject: SURVIVOR LOCATOR LIGHTS

TSO-C85

Technical Standards Orders for Aircraft Materials, Parts and Appliances

Part 514 which contains minimum performance standards and specifications for materials, parts, and appliances used in aircraft consists of two subparts. Subpart A contains the general requirements applicable to all Technical Standard Orders. Subpart B contains the technical standards and specifications to which a particular product must conform.

ANY TECHNICAL STANDARD ORDER MAY BE OBTAINED BY SENDING A REQUEST TO FAA, WASHINGTON 25, D.C.

Subpart A—GENERAL

§ 514.0 Definition of terms.

As used in this part:

(a) "Administrator" means the Administrator of the Federal Aviation Agency or any person to whom he has delegated his authority in the matter concerned.

(b) "FAA" means Federal Aviation Agency.

(c) "Manufacturer" means a person who controls the design and quality of an article produced under the TSO system, including all parts thereof and processes and services related thereto obtained from outside sources.

(d) "Article" means the materials, parts, or appliances for which approval is required under the Civil Air Regulations for use on civil aircraft.

§ 514.1 Basis and purpose.

(a) *Basis.* Section 601 of the Federal Aviation Act of 1958, and §§ 3.18, 4a.31, 4b.18, 5.18, 6.18, 7.18, 10.20, 13.18, and 14.18 of this title (Civil Air Regulations).

(b) *Purpose.* (1) This part prescribes in individual Technical Standard Orders the minimum performance and quality control standards for FM approval of specified articles used on civil aircraft, and prescribes the methods by which the manufacturer of such articles shall show compliance with such standards in order to obtain authorization for the use of the articles on civil aircraft.

(2) The performance standards set forth in the individual Technical Standard Orders are those standards found necessary by the Administrator to assure that the particular article when used on civil aircraft will operate satisfactorily, or accomplish satisfactorily its in-

tended purpose under specified conditions.

§ 514.2 TSO authorization.

(a) *Priorities.* No person shall identify an article with a TSO marking unless he holds a TSO authorization and the article meets the applicable TSO standards prescribed in this part.

(b) *Letters of acceptance issued prior to July 1, 1962.* An FAA letter of acceptance of a statement of conformance issued for an article prior to July 1, 1962, is an authorization within the meaning of this part and the holder thereof may continue to manufacture such article without obtaining an additional TSO authorization, but shall comply with the requirements of § 514.3 through § 514.10.

(c) *Application.* The manufacturer or his duly authorized representative shall submit an application for a TSO authorization together with the following documents (See Appendix A of this subpart for sample application) to the Chief, Engineering and Manufacturing Branch, Flight Standards Division, in the region in which the manufacturer is located.

(1) A statement of conformance certifying that the applicant has complied with the provisions of Subpart A and the article meets the applicable performance standards established in Subpart B of this part (See Appendix B of this subpart for sample statement of conformance);

(2) Copies of the technical data required in the performance standards set forth in Subpart B of this part for the particular article;

(3) A description of his quality control system in the detail specified in § 11.36 of this title (Civil Air Regulations). In complying with

this provision the manufacturer may refer to current quality control data filed with the Agency, as a part of a previous application.

Note: When a series of minor changes in accordance with § 514.5 is anticipated, the manufacturer may set forth in his application the basic model numbered article with open brackets after it to note that such change letters will be added from time to time, e.g., Model No. 100 ().

(d) *Labeling.* (1) Upon receipt of the application and adequate supporting documents specified in paragraph (c) of this section to substantiate the manufacturer's statement of conformance with the requirements of this part and his ability to produce duplicate articles in accordance with the provisions of this part, the applicant will be given an authorization to identify his article with the applicable TSO marking.

(2) If the application is deficient in respect to any requirements, the applicant shall, upon request by the Chief, Engineering and Manufacturing Branch, submit such additional information as may be necessary to show compliance with such requirements. Upon the failure of the applicant to submit such additional information within 30 days after the date of the request therefor, his application will be denied and he will be so notified by the Chief, Engineering and Manufacturing Branch.

Note: The applicant will be issued an authorization or refusal of the denial of his application within 30 days after the date of receipt of such application or, in the event that additional information has been requested, within 30 days after the date of receipt of such additional information.

Articles may also be approved and manufactured for use on civil aircraft as a part of the type design of an aircraft certificate for an aircraft engine or propeller.

Regional Offices are located at New York, Atlanta, Kansas City, Fort Worth, Los Angeles, and Chicago.

§ 514.3 Conditions on authorizations.

The manufacturer of an article under an authorization issued under the provisions of this part shall—

(a) Manufacture such article in accordance with the requirements of subpart A and the performance standards contained in the applicable TSO of Subpart B of this part;

(b) Conduct the required tests and inspections, and establish and maintain a quality control system adequate to assure that such article, as manufactured, meets the requirements of paragraph (a) of this section and is in a condition for safe operation;

(c) Prepare and maintain for each type or model of such article a current file of complete technical data and records in accordance with § 514.6; and

(d) Permanently and legibly mark each such article with the following information :

(1) Name and address of the manufacturer,

(2) Equipment name, or type or model designation,

(3) Weight to the nearest tenth of a pound,

(4) Serial number and/or date of manufacturer, and

(5) Applicable Technical Standard Order (TSO) number.

§ 514.4 Deviations.

Approval for a deviation from the performance standards established in Subpart B may be obtained only if the standard or standards for which deviation is requested are compensated for by factors or design features which provide an equivalent level of safety. A request for such approval together with the pertinent data shall be submitted by the manufacturer to the Chief, Engineering and Manufacturing Branch of the Region in which the applicant is located.

§ 514.5 Design changes.

(a) ~~By Manufacturer.~~ (1) *Minor changes.* The manufacturer of an article under an authorization issued pursuant to the provisions of this part may make minor design changes to the article without further approval by the FM. In such case the changed article shall retain the original model number and the manufacturer shall forward to the Chief, Engineering and Manufacturing Branch such revised data as may be necessary for compliance with § 514.2 (c).

(2) *Major changes.* If the changes to the article are so extensive as to require a substantially complete investigation to determine compliance with the performance standards established in Subpart B, the manufacturer shall assign a new type or model designation to the

article and submit a new application in accordance with the provisions of § 514.2 (c).

(b) *By persons other than the manufacturer.* Design changes to an article by a person other than the manufacturer who submitted the statement of conformance for such article are not eligible for approval under this part, unless such person is a manufacturer as defined in § 514.0 and applies for authorization under § 514.2 (c).

NOTE : Persons other than a manufacturer may obtain approval for design changes to a product manufactured under a TSO pursuant to the provisions of Part 18 or the applicable airworthiness regulations.

§ 514.6 Retention of data and records.

(a) A manufacturer holding an authorization issued pursuant to the provisions of this part shall, for all articles manufactured under such authorization on and after July 1, 1962, maintain and keep at his factory :

(1) A complete and current technical data file for each type or model of article which shall include the design drawings and specifications. This technical data shall be retained for the duration of his operation under the provisions of this part.

(2) Complete and current inspection records to show that all inspections and tests required to ensure compliance with this part have been properly accomplished and documented. These records shall be retained for at least two years.

(b) The data specified in paragraph (a) (1) of this section shall be identified and copies transferred to the FAA for record purposes in the event the manufacturer terminates his business or no longer operates under the provisions of this part.

§ 514.7 Inspection and examination of data, articles or manufacturing facilities.

The manufacturer shall, upon request, permit an authorized representative of the FAA to inspect any article manufactured pursuant to this part, and to observe the quality control inspections and tests and examine the manufacturing facilities and technical data files for such article.

§ 514.8 Service difficulties.

Whenever the investigation of an accident or a service difficulty report shows an unsafe feature or characteristic caused by a defect in design or manufacture of an article, the manufacturer shall upon the request of the Chief, Engineering and Manufacturing Branch, report the results of his investigation and the action, if any, taken or proposed by him to correct the defect in design

or manufacture (e.g., service bulletin, design changes, etc.). If the defect requires a design change or other action to correct the unsafe feature or characteristic, the manufacturer shall submit to the Chief, Engineering and Manufacturing Branch, the data necessary for the issuance of an airworthiness directive containing the appropriate corrective action.

§ 514.9 Noncompliance.

Whenever the Administrator finds that a manufacturer holding an authorization issued pursuant to the provisions of this part has identified an article by a TSO marking and that such article does not meet the applicable performance standards of this part, the Administrator may, upon notice thereof to the manufacturer, withdraw the manufacturer's authorization and, where necessary, prohibit any further certification or operation of a civil aircraft upon which such article is installed until appropriate corrective action is taken.

§ 514.10 Transferability and duration.

An authorization issued pursuant to the provisions of this part shall not be transferred and is effective until surrendered, or withdrawn, or otherwise terminated by the Administrator.

APPENDIX A SAMPLE APPLICATION FOR TSO AUTHORIZATION

(Date) -----

(Addressed to : Chief, Engineering and Manufacturing Branch, Federal Aviation Administration Agency.)

Application is hereby made for authorization to use the Technical Standard Order procedures.

Enclosed is a statement of conformance for the article to be produced under TSO-C-----.

The required quality control data are transmitted : (herewith) (under separate cover) .

Signed -----

APPENDIX B SAMPLE STATEMENT OF CONFORMANCE

(Date) -----

(Addressed to : Chief, Engineering and Manufacturing Branch, High Standards Division, Federal Aviation Agency.)

The undersigned hereby certifies that the article listed below by model, type or part number has been tested and meets the performance standards of Technical Standard Order C----- . In addition, all other applicable provisions of Part 514 of the Regulations of the Administrator have been met.

The technical data required by the TSO in the quantity specified are transmitted : (herewith) (under separate cover).

Authorization to use TSO identification on this article is requested.

signed -----

! Reference may be made to data already on file with the FAA.

FEDERAL AVIATION AGENCY

[14 CFR PART 37]

[Docket No. 6810; Notice No. 63-118]

Technical Standard Order ~~C78~~

**CREWMEMBER DEMAND OXYGEN MASKS
(Air Carrier or Transport Category Aircraft)**

Notice of Proposed Rule Making

This notice supersedes Draft Release 63-10 (28 F.R. 2445) and proposes the adoption of a new Technical Standard Order covering aircraft crew demand type oxygen masks to be used on U.S. civil aircraft engaged in air carrier operations.

Draft Release 63-10 was issued February 26, 1963. A number of changes have been made in the proposed standard in response to comments received on that Draft Release. In view of these changes and of the length of time that has elapsed since the issue of Draft Release 63-10 the Agency believes that the issue of this new notice, again inviting industry comment, is appropriate and will be beneficial both to the Agency and the public.

This proposed standard differs from that contained in Draft Release 63-10 in the following major respects:

1. The majority of the detailed requirements concerning test methods and procedures have been dropped.

2. The new proposed standard would impose an inhalation valve backleak standard in addition to the total mask leakage standard originally proposed.

3. The requirements for ratings of masks by classes have been amended.

4. The new proposed standard would specifically require that the mask be designed to include means of preventing direct impingement of gases on the inhalation port or valve.

5. The new proposed standard would not allow vibration, flutter, or chatter that would interfere

with the satisfactory operation of the mask. The requirement, in Draft Release 63-10, that the mask not exhibit excessive vibration, flutter, or chatter characteristics sufficient to be distracting to its wearer, has been dropped.

6. The new proposed standard would specifically impose a maximum operating altitude of 40,000 feet for straight or diluter-demand masks and 45,000 feet for pressure-demand masks.

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should identify the regulatory docket or notice number and be submitted in duplicate to the Federal Aviation Agency, Office of the General Counsel: Attention Rules Docket, 800 Independence Ave., S.W., Washington, D. C. 20553. All communications received on or before November 15, 1965, will be considered by the Administrator before taking action on the proposed rule. The proposal contained in this notice may be changed in the light of comments received. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons.

In consideration of the foregoing, it is proposed to amend Part 37 of the Federal Aviation Regulations by adding a new section reading as follows:

§ 37.184 *Crew member demand oxygen masks for air carrier or transport category aircraft*—TSO-C78.

(a) **Applicability.** This **TSO** prescribes the minimum performance standards that **crewmember demand oxygen masks**, to be used on air carrier or transport category **ESS. civil** aircraft, must meet in order to be identified with the applicable **TSO** marking. New models of such equipment that are to be so identified and that are manufacturer on or after the effective date of this section must meet the requirements set forth in the FAA Standard entitled "**Crewmember Demand Oxygen Masks** (air carrier or transport category aircraft) " dated July 15, 1965.

(b) **Marking.** Oxygen masks manufactured in accordance with the provisions of this section shall be marked in accordance with the provisions of §37.7, except as provided in subparagraphs (1) through (3) of this paragraph :

(1) The serial number and the weight shall be excluded:

† Copies may be obtained upon request addressed to Library Services Division, HQ-620, Federal Aviation Agency, Washington, D. C. 20553.

(2) The kind of mask, either "demand" or "pressure demand", shall be included ; and

(3) The maximum operating altitude shall be included.

(c) **Data reps in enfs.** Seven copies each, except where noted, of the following, shall be furnished the Chief, Engineering and Manufacturing Branch, Flight Standards Division, Federal Aviation Agency, in the region in which the manufacturer is located.

(1) Manufacturer's operating instructions and equipment limitations ;

(2) Installation procedures with applicable drawings and specifications, limitations, restrictions, and other conditions pertinent to installation ;

(3) One copy of the manufacturer's test report; and

(4) One copy of the manufacturer's maintenance instructions, including cleaning and sterilizing procedures.

This amendment is proposed under the authority of §§ 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421).

Issued in Washington, D.C. on July 26, 1965.


Director
Flight Standards Service

FEDERAL AVIATION AGENCY STANDARD
for
CREWMEMBER DEMAND OXYGEN MASKS
(Air Carrier or Transport Category Aircraft)

1.0 PURPOSE.

This Standard contains minimum performance standards for the manufacture of demand type oxygen masks for use with straight-demand, diluter-demand, and pressure-demand oxygen systems.

2.0 DESIGN AND CONSTRUCTION OF MASK.

To be eligible for approval under a Technical Standard Order authorization, the oxygen mask must possess the following design and construction characteristics.

2.1 Masks designed for use with a remotely located oxygen flow regulator must include a flexible oxygen supply tube fixed or detachable at the mask and/or at the regulator. Oxygen supply tubes used in conjunction with mask-mounted oxygen flow regulators are not subject to this Standard.

2.2 The mask must be designed for respiration through the nose and mouth (oronasal). The mask may also include integral goggles designed to protect the eyes from smoke and harmful gases (fullface).

2.3 The mask must be constructed of materials that—

- (a) do not contaminate air or oxygen ;
- (b) are not adversely affected by continuous contact with oxygen; and
- (c) are at least flame resistant.

2.4 The mask must be designed to prevent the accumulation of hazardous quantities of expiratory gases within the facepiece chamber.

2.5 The mask must be designed to include means of preventing direct impingement of the expiratory gases upon the inhalation port or valve.

2.6 The mask must be designed to prevent the formation or accumulation of frost which would interfere with the function of the exhalation valve, unless it can be shown that the frost can be removed by external manipulation without removing the mask from the face of the user.

2.7 The fullface mask must be designed to include means for the prevention or the removal of condensation from the inside surfaces of the goggle lenses.

2.8 Masks equipped with oxygen supply tubes designed for quick disconnection at the mask or at the regulator must incorporate means to alert the user when his oxygen supply tube has become disconnected. Such

means must not restrict the flow of ambient air through the oxygen supply tube by an amount exceeding 25 percent. This section does not apply if the quick disconnect device incorporates means to prevent inadvertent separation.

3.0 PERFORMANCE.

Fire masks of each kind for which approval is sought must be shown to comply with the minimum performance standards set forth in paragraphs 3.1 through 3.12, except that only one mask of each kind is required to comply with the provisions of paragraphs 3.6, 3.8, 3.9, and 3.11. Tests must be conducted at ambient atmospheric conditions of approximately 30° F. and 70° F., except as otherwise specified. It is permissible to correct gas flow rates and pressures to STPD by computation.

3.1 Quick-disconnect coupling. The force required to separate quick-disconnect couplings not designed to prevent inadvertent separation must not be less than 15 pounds exerted along the axis of symmetry of the oxygen supply tube.

3.2 Strength.

(a) The mask must be capable of sustaining a pull force on the suspension device attachment fittings of not less than 35 pounds in any direction for a period of not less than 3 seconds.

(b) The oxygen supply tube assembly must be capable of sustaining a pull force of not less than 30 pounds exerted along the axis of symmetry of the tube for a period of not less than 3 seconds.

(c) The oxygen supply tube assembly must be capable of sustaining an internal pressure of 1.5 p.s.i.g.

3.3 Leakage.

(a) The total inward leakage rate, considering the mask periphery, the exhalation valve, the oxygen supply tube, and the microphone installation, if any, may not exceed 0.10 LPM STPD at any negative differential pressure within the range of from zero to 6.0" H₂O.

(b) Inhalation valves installed in pressure-demand masks must not backleak more than 0.015 LPM, STPD, when subjected to a suction pressure differential of 0.1" H₂O and more than 0.15 LPM, STPD, when subjected to a suction pressure differential of 12.0" H₂O.

(c) The oxygen supply tube assembly must not leak when subjected to an internal pressure of 1.5 p.s.i.g.

3.4 Flow Resistance.

(a) The inspiratory resistance of the mask and oxygen supply tube must not exceed the following negative differential pressures at the corresponding oxygen flow rates :

Differential Pressure " H_2O "	Flow Rate LPM
0.6	20
1.5	70
2.5	100

(b) The expiratory resistance of the mask and the oxygen supply tube must not exceed the following positive differential pressures at the corresponding oxygen flow rates:

Differential Pressure " H_2O "	Flow Rate LPM
1.0	20
2.0	70
3.0	100

(c) The mask must not suffer damage at gas flows up to and including 120 LPM, STPD.

3.5 Pressure-Induced Exhalation Valve Performance.

The exhalation valve installed in pressure-demand masks must open at a pressure between 15 mm. hg., abs., and 19.9 mm. hg., abs., when the pressure within the mask is 20 mm. hg., abs.

3.6 Vibration.

(a) The flow of gases during the respiratory process must not cause vibration, flutter, or chatter which would interfere with the satisfactory operation of the mask.

(b) The mask must comply with paragraph 3.3 through 3.5 when subjected to vibrations of from 5 to 500 c.p.s., at not less than 2g acceleration, and at not more than 0.036 inches double amplitude parallel to each of the mutually perpendicular axes.

(c) If resonance occurs, the mask must not suffer damage and must comply with paragraph 3.1 through 3.5 after being vibrated at the resonant frequency for one million cycles at 8 hours, whichever occurs first.

3.7 Acceleration Load. The exhalation valve must not inadvertently operate under a 3g load applied in any direction.

3.8 Extreme Temperature. The mask must comply with paragraphs 3.3 through 3.5 in an ambient temperature of 70° F. within 15 minutes after being stored at a temperature of 160° F. for 12 hours, and within 15 minutes after being stored at -60° F. for 2 hours. The relative humidity during storage must vary from 5 to 95 percent. The mask facepiece must not be gummy or sticky and must provide a normal seal after the high temperature exposure.

3.9 Low Temperature Test Delay.

(a) The mask must function properly without apparent delay to the user at a temperature of 70° F. after being stored at a temperature of -40° F. for not less than 2 hours.

(b) The mask must function properly without apparent delay to the user and continue for a period of not less than 15 minutes when tested at a temperature of -40° F. after being stored at a temperature of 70° F. for not less than 12 hours.

3.10 Decompression.

(a) Masks not equipped with pressure relief valves. Masks not equipped with a pressure relief valve must not suffer damage and must comply with paragraphs 3.3 through 3.5 after being subjected to a decrease in ambient pressure from 12.2 p.s.i.a. to not less than 2.7 p.s.i.a. for pressure-demand masks, within a period of not more than 10 seconds.

(b) Masks equipped with pressure relief valves. During the decompression specified in paragraph (a) of this section, the pressure relief valve must open at a differential pressure of 12" H_2O and shall relieve the differential pressure to a value not exceeding 10" H_2O within 5 seconds. During the 5-second interval, the pressure differential must not exceed a value of 14" H_2O . The pressure relief valve shall close at a differential pressure of 10" H_2O .

3.11 Cycling. The mask must comply with paragraphs 3.3 through 3.5 after being subjected to the following simulated breathing schedule :

Respiratory Cycles	Minute Flow Rate LPM, STPD	Volume, Liters	Tidal
20,000	20	1.0	
25,000	30	1.5	
5,000	70	2.0	

A constant time interval must be maintained between each respiratory cycle.

3.12 Microphone. If the mask is designed to include a microphone, the installation of the microphone must not interfere with the operation of the mask.

4.0 QUALITY CONTROL.

4.1 Production Tests. Each mask shall be shown to comply with the provisions of paragraph 3.3(a), total leakage.

4.2 Random Tests. One mask shall be selected at random from each lot and shall be shown to comply with paragraphs 3.1 through 3.12. The lot size shall be selected by the applicant subject to the approval of the Federal Aviation Agency (see FAR § 37.5), on the basis of evaluation of the applicant's quality control systems (see § 37.5(a)(3)).

5.0 MAXIMUM OPERATING ALTITUDE.

The minimum pressure to which the mask has been shown to decompress satisfactorily in accordance with

paragraphs 3.10 (a) or (b) of this standard determines the maximum operating altitude of the mask, except that it shall not exceed the value shown in the following table :

<i>Maximum Operating Altitude</i>	<i>Kind of Mask</i>
40,000 feet	Straight or Diluter-Demand
45,000 feet	Pressure-Demand

6.0 ABBREVIATIONS AND DEFINITIONS.	
LPM	Liters per minute
STPD	Standard temperature and pressure, dry (0° C, 760 mm. hg.)
c.p.s.	Cycles per second
c.p.m.	Cycles per minute
p.s.i.g.	Pounds per square inch, gauge
p.s.i.a.	Pounds per square inch, absolute
g	Acceleration of gravity, 32.2 ft/sec ²
Tidal Volume	Volume of air inspired per breath

April 22, 1964

Federal Aviation Agency Standard
for
Survivor Locator Lights

- 1.0 Purpose.** To establish **minimum performance standards for survivor locator lights** intended for attachment **on life preservers and life rafts.**
- 2.0 Scope.** This standard covers battery powered **survivor locator lights designed to provide electric illumination for life preservers and life rafts for the purpose of facilitating the location of persons who have survived an emergency landing at sea.** The term "light assembly" includes the complete **assembly** of power source, wiring, attachment provisions, and **light** proper.
- 3.0 Minimum Performance Requirements.**
- 3.1 Light Intensity.** The light assembly shall emit a white **light** with a minimum effective intensity of one **(1)** candle when measured in all directions **in the horizontal plane.** The light assembly shall provide the required **intensity** for a minimum of eight **(8)** hours. **If** a flashing light is used, the effective intensity shall be computed by the following formula:

$$I_e = \frac{\int_{t_1}^{t_2} I(t) dt}{0.2 + (t_2 - t_1)}$$

I_e = effective intensity (candles)

$I(t)$ = instantaneous intensity as a function of time

$t_2 - t_1$ = flash time interval (seconds)

- 3.2 Light Distribution.** The light assembly shall be so designed that when installed on the life preserver or life raft illumination will be provided to the fullest extent practicable **in all directions from the horizontal plane to the vertical.**
- 3.3 Attachment Provisions.** The method of attaching the light **assembly to the life preserver or life raft** shall be such that it cannot **become detached** without deliberate **effort.** **Parts, materials** and adhesives used **in the** installations shall be compatible with **the** life preserver or life raft materials and construction.

3.4 Moisture Penetration. All components of the light assembly which may be detrimentally affected by the presence of water shall be suitably protected against the entry of moisture to the extent that prolonged immersion in fresh or salt water will not adversely affect its operation.

3.5 Source of Electrical Power. The source of electrical power for the light shall be a part of the light assembly but **need** not be a part of the light fixture. Either dry cells or immersible water activated batteries suitable for the purpose may be used.

3.6 Light Activation. A method for controlling activation of the light shall be provided. The method shall be readily **apparent** to the user. For water activated batteries removal of the cell from water is acceptable as a method of light deactivation.

4.0 Required Tests.

4.1 Initial Qualification Tests. The tests indicated in the following ~~subpara-~~graph shall be conducted for initial qualification. These tests shall be conducted on a minimum of three samples. Each test article shall be representative of production units and shall be individually identified. The use of other standard test procedures which will provide equivalent or better results than obtained by using the stated specifications will be acceptable.

- a. **Salt Spray.** All metal parts shall operate satisfactorily and shall not corrode when subjected to a salt spray in accordance with Federal Specification ~~QQ-M-151~~ for a period of **100** hours.
- b. **Rubber Goods.** A sample of rubber goods shall be tested in accordance with specification ~~FED-STD-601~~.
- c. **Survivor Locator Light Intensity.** It shall be demonstrated that the survivor locator light provides a minimum effective intensity of 1 candle as specified in paragraph **3.1** for a period of 8 hours.
- d. **Flame Resistance.** All nonmetallic materials shall be tested for flame resistance in accordance with Federal Specification ~~CCCC-T-191~~, Method **5906**.
- e. **Survivor Locator Light Watertightness.** Each test sample light shall be submerged for a period of 8 hours in fresh water at **70° F.** to such a depth that the highest point of the light is under a three foot head. After removal from the water, the light shall be examined to determine that no leakage has taken place.

4.2 Individual Functional Test. For dry cell type powered lights each light assembly shall be operated to demonstrate that the assembly is in an operating condition by lighting the light with the means provided. For water activated types each assembly including the battery shall be checked to assure that it is in an acceptable condition for proper operation.

§ 514.91 Survivor locator lights - TSO-C85.

(a) Applicability. Minimum performance standards are hereby established for survivor locator lights intended for installation on life preservers (adult and child) and life rafts for use in civil aircraft of the United States. New models of survivor locator lights manufactured on or after the **effective** date of this section shall meet the requirements **specified in Federal Aviation Agency Standard, "Survivor Locator Lights", dated April 22, 1964.**^{1f}

(b) Marking. The survivor locator light shall be permanently marked in accordance with the provisions of **§ 514.3(d)**, except that the weight **of the** light assembly may be omitted,

(c) Data requirements. In accordance with the provisions of **§ 514.2**, as applicable, manufacturers of survivor locator lights shall furnish **to the** Chief, Engineering and Manufacturing Branch, Flight Standards Division, Federal Aviation Agency, in the region in which the manufacturer is located, the following technical data: Six copies of an instruction manual containing descriptive information of the device, information for its maintenance and overhaul, instruction concerning the proper mounting of the light on **the life** preservers or life rafts to ensure continued compliance with prescribed minimum performance standards and pertinent operating instruction and limitations for the device.

(d) Effective date, July **6, 1964.**

¹/Copies may be obtained upon request addressed to Library Services Division,
HQ-620, Federal Aviation Agency, Washington, **D.C. 20553**

